

### **REMARKS**

In view of the above amendments and following remarks, reconsideration of the rejections contained in the Office Action of November 17, 2004 is respectfully requested.

In the Office Action, the Examiner rejected claims 16 and 23 as being unpatentable over Laursen et al., U.S. Patent 6,071,816 in view of Lehman et al., U.S. Patent 6,621,264. Claims 18, 20, 25 and 27 were further rejected as being unpatentable over Laursen et al., Lehman et al. and in further view of Hara et al., U.S. Patent 6,451,696. Claims 18, 20, 25 and 27 were further rejected as being unpatentable over Laursen et al., Lehman et al. and in further view of Allen et al., U.S. Patent 6,292,708. However, it is respectfully submitted that the present invention, especially as now further amended above, clearly distinguishes over each of Laursen et al., Lehman et al., Hara et al. and Allen et al.

It is initially noted that the Examiner's reference to Laursen et al. is believed to be a reference to U.S. Patent 6,555,466. The patent number referenced by the Examiner as being Laursen et al. is in fact a patent to Watts et al. It is believed that the Examiner intended to refer to the Laursen et al. patent, despite the different patent number, because of the correspondence between the reference numbers and the portion of the document cited in the discussion in section 2 on page 2 of the Office Action.

By the above amendments, each of independent claims 16 and 23 has been amended to recite that the measuring of the film thickness of the first metal layer with the eddy current monitor during the polishing of the first metal layer has the eddy current monitor monitoring a combined impedance of the first and second metal layers with the sensor circuit. New independent claims 38 and 39 are similar, but the limitations vary somewhat. However, both also recite the eddy current monitor monitoring the combined impedance of the first and second metal layers with the sensor circuit.

Noting the discussion in the substitute specification of Fig. 8, in particular the discussion on page 27, film thickness measuring device 10-14 is of the eddy current type. The eddy current is generated in conductive films, i.e. copper plating film layer 106 and feed seed layer 107, of the semiconductor substrate W by applying high frequency electrical current to a sensor coil. Since the

eddy current is changed in accordance with the film thickness, the film thickness is measured by monitoring the combined impedance with a sensor circuit.

None of the references cited by the Examiner discloses or suggests the eddy current monitor monitoring the combined impedance of the first and second metal layers with a sensor circuit.

The patent to Laursen et al. does not disclose or suggest an eddy current monitor at all. However, the Examiner cites Lehman et al. as teaching an eddy current monitor.

Lehman et al. discloses an eddy current probe that may be integrated with a chemical mechanical polishing tool to detect film thickness of a deposited layer. However, it does not disclose or suggest the recited eddy current monitor monitoring the combined impedance of the first and second metal layers with a sensor circuit as required in each of the independent claims.

Hara et al. was cited as teaching the load in respective etching steps. Allen et al. was cited as teaching cleaning and drying. However, both are silent with respect to the above requirement of the eddy current monitor monitoring the combined impedance of the first and second metal layers with the sensor circuit.

As all of the prior art references cited by the Examiner are silent with respect to the above aspect of the present invention, and because each of independent claims 16, 23, 38 and 39 all include this feature, it is respectfully submitted that all of the claims pending in the present application at this point clearly patentably distinguish over the prior art. Discussion of the differences that are further present between the dependent claims and the various references cited by the Examiner is not deemed to be necessary in view of this clear distinction. Applicants reserve their rights to further raise these distinctions, however, as necessary.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance, and the Examiner is requested to pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact Applicants' undersigned representative.

Respectfully submitted,

Norio KIMURA et al.

By: 

Nils E. Pedersen  
Registration No. 33,145  
Attorney for Applicants

NEP/krp  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
February 17, 2005